REMARKS

This Preliminary Amendment cancels without prejudice original claims 1 to 10 in the underlying PCT Application No. PCT/DE2004/000179. This Preliminary Amendment adds new claims 11 to 25. The new claims are believed to conform to the U.S. Patent and Trademark Office rules and do not add new matter to the application.

In accordance with 37 C.F.R. § 1.121(b)(3), the Substitute Specification (including the Abstract, but without the claims) contains no new matter. The amendments reflected in the Substitute Specification (including Abstract) are to conform the Specification and Abstract to U.S. Patent and Trademark Office rules or to correct informalities. As required by 37 C.F.R. § 1.121(b)(3)(iii) and § 1.125(b)(2), a Marked Up Version Of The Substitute Specification comparing the Specification of record and the Substitute Specification also accompanies this Preliminary Amendment. In the Marked Up Version, double-underlining indicates added text and strikeouts indicate deleted text. Approval and entry of the Substitute Specification (including Abstract) is respectfully requested.

The underlying PCT Application No. PCT/DE2004/000179 includes an International Search Report, dated July 6, 2004. The Search Report includes a list of documents that were found in the underlying PCT Application. An English translation of the Search Report accompanies this Preliminary Amendment.

Applicants assert that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are requested.

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ADMINISTRATOR FOR AUTOMATICALLY ADAPTING A TRANSMISSION CHANNEL

FIELD OF THE INVENTION

The present invention relates to a method and system for exchanging data using a wireless connection~~, a user having~~. Further, the present invention relates to a method and system in which a user has one or more portable terminals ~~being~~ located in the transmission and reception range of at least one network, the terminal or terminals automatically logging on to the network in order to establish a connection, and a transmission channel being made available for the data exchange within the framework of the connection established in each case. ~~The present invention is also directed to a system for implementing the method.~~

RELATED TECHNOLOGY

Depending on a user's exact whereabouts, more or fewer possibilities are available to him for exchanging data via wireless connections. More often than not, the user is in the service area of ~~GSM [~~the Global System for Mobile Communications~~]~~ (GSM) networks for mobile telephony, while short-range radio communications networks such as Bluetooth or ~~WLAN [wireless local-area network] are~~Wireless Local-Area Network (WLAN) may be only available to ~~him~~the user on certain occasions.

The exchange of large volumes of data is generally associated with different expenditure in terms of transmission time and cost, depending upon the type of connection usable at the moment. For this reason, the user has an interest in waiting with the download of an MP3 data file, for example, until he

gets into the Internet via a faster mode, e.g., WLAN. ~~He~~The user will not want to retrieve the data file via GSM. Thus, the user will wait until the terminals ~~he~~the user is carrying ~~with him~~ get into the service area of a distributor or access point which provides ~~them~~the terminals with access to external networks via a local network. So-called "cafe computing" ~~would be a special exemplary embodiment~~is an example of such local networks. ~~It is based on the already established concept, according to which~~In such a situation, a user goes into a cafe, for instance, opens his laptop, logs wirelessly (e.g., Bluetooth) onto the local network of the cafe via an access point, and answers E-mails or surfs the Internet while enjoying a cappuccino. Located next to ~~him is also his~~the user can be a cellular phone, with which ~~he~~the user telephones via GSM, or exchanges ~~SMS [~~short messaging service~~]~~ (SMS) messages.

When working with such devices, ~~it is again disadvantageous that~~ a maximum bandwidth is reserved for each unit logged onto the cafe access point, even if the user needs only a little capacity at the moment. Consequently, resources often are wasted unnecessarily for relatively modest requirements. From the cafe operator's point of view, this ~~is~~can be unsatisfactory~~,~~ since resources which he could profitably offer to other users are being blocked.

DETAILED DESCRIPTION

~~The object~~Exemplary embodiments of the present invention ~~is now to~~ provide a method for data exchange within the framework of such concepts described above, which may easily be implemented by cost-effective means, and which automatically ensures efficient distribution of the available resources, accompanied by great ease of operation, and which therefore ~~contributes~~can contribute to an increase of acceptance.

~~These objectives are achieved by the method having the characterizing features of Claim 1, and by the system as recited in Claim 10.~~

~~The background of the invention lies in~~Exemplary embodiments involve the recording of the whereabouts of a user and his respective terminals and, depending on the whereabouts, automatically making available to ~~him~~the user the connections that are possible there, and ~~have~~having the capacity needed for the data exchange. ~~This~~Such embodiments involve an adaptation ~~relates~~relating to the type of terminal or terminals and the type, ~~especially~~for example, the quantity, of data waiting for transmission. ~~It is~~Such can be accomplished automatically by the administrator assigned to the network.

~~The~~Exemplary embodiments of the present invention ~~is able to manifest~~can be manifested on two levels. Thus, the user, having his terminals, may stay at one location, e.g., in the area of a cafe access point, over the duration of the connection. The result ~~of the inventive method~~ is that the administrator assigned to this "internal" network then makes an optimized connection available to the user. On the other hand, in a superordinate level of the ~~method~~present invention, the movement of the terminals across the boundaries of networks is monitored, and depending on the whereabouts, connections are produced to the networks established there. The user is thus able to move freely, while the system takes care that he is able to accomplish his data transmission, in each case under optimized marginal conditions, ~~particularly~~for example, with respect to costs, security and/or transmission performance. Among the channels available, ~~that~~ one is selected which is suitable for fulfilling the task, this channel ~~moreover~~ being adjustable in its transmission capacity. Thus, the administrator assumes the function of a router which automatically selects the best possible transmission path. ~~It can also be advantageous if~~In further embodiments, the user ~~is able to~~can predefine the priorities.

To implement the ~~method~~present invention within the framework of a local network, e.g., in a cafe, a permanently installed device ~~is advantageously~~can be used as administrator, the portable terminal gaining access to an external communication network, ~~particularly~~for example, the Internet or a telephone network, via the administrator. In this case, the connection between the terminal and the administrator is established via a short-range radio communication network, ~~especially~~for example, Bluetooth or WLAN.

~~Thus, according to~~In exemplary embodiments of the present invention, the available possibilities and resources are adapted flexibly to the instantaneous requirements. In order to accomplish this, ~~in one advantageous specific embodiment, first of all~~ the type of portable terminals to be assigned to a user~~, as well as~~ and the type of data waiting to be transmitted are ascertained. On the basis of the conditions ~~thus~~ ascertained, one connection is then selected from a plurality of connections available. Ultimately, the connection is established and cleared between the distributor and the portable terminal.

~~Moreover, it is advantageous if~~Exemplary embodiments of the present invention also are useful when usage of the local network is possible with different terminals. Thus, it is ~~unimportant~~unnecessary to know what communication device the user entering the cafe is also carrying with him. ~~He~~At the user's whim, the user is able to make use of a personal data assistant (PDA), a laptop or a BlackBerry. According to the present invention, the communication with the terminal is possible via the wireless network of the cafe, without an external provider, accompanied by additionally accruing costs, being needed. The administrator obtains the information, transmitted or detected automatically, as to what devices are available to the user, and selects one of the devices and the type of connection optimized to the data.

As.~~already~~ explained, it is ~~advantageous~~useful if the administrator selects the bandwidth (capacity) as a function of the amount of data to be transmitted.

~~The~~In an exemplary embodiment, the greater the quantity of data waiting, the greater the bandwidth it will select, in order to attain a comfortable transmission rate. In selecting the bandwidth, the administrator will orient itself to how high the overall load is at present, and what total transmission duration at most it may probably expect of the user. In this context, depending on the direction of the data transmission, the need may be ascertained automatically or by a message sent in advance. In the case of transmission to the terminal, by analysis, the administrator is able to learn the type, ~~particularly~~for example, the extent and the transmission standard, of the data waiting on its side for transmission. For ~~instance~~example, if it determines that it is a larger MP3 file, it will make a WLAN connection having higher bandwidth available~~,~~; while for a small E-mail, a Bluetooth connection with low bandwidth ~~is~~may be preferred~~, for example~~.

If the intention is to transmit from the terminal to the administrator, it is ~~advantageous~~useful to first send a brief message about the type of data waiting on the side of the terminal, in a kind of header. Based on this information, the administrator is able to set up an optimal connection. In this context, it ~~is advantageous if~~can be arranged so that each terminal permits the user to define certain usage profiles in advance. Based on the usage profiles, the device ascertains the bandwidth probably needed, and relays this, ~~particularly~~for example, via the header, to the administrator. Therefore, each device within the reception radius has made available to it only the bandwidth it is anticipated to need. In ~~one advantageous specific~~an exemplary embodiment, it is possible for the distributor to change between bands in the course of a connection, depending upon the requirement. For example, the subject of the fetched E-mail could be sent via Bluetooth, and the annex via rapid WLAN. The user will not notice the switchover between the connections on his laptop.

Such a change also exists when information about the type of data that are following is initially exchanged via a first band, before the data are exchanged via another band adapted to the type.

~~It is also advantageous if~~In exemplary embodiments, profile data, which bring about a prior determination of tasks to be accomplished, are predefined to the system. Consequently, the terminal is able to undertake a specific transmission automatically, as soon as it is located in the reception range of an administrator, and without the user having to repeat this process ~~himself~~ each time.

This type of "flexible" interface according to the present invention ~~offers various advantages:~~is useful. Thus, by the definition of this interface standard, which permits an adjustment of various profile data of individual devices and users with the administrator, it is possible to optimally organize specific bandwidth requirements, while at the same time, a convenient automation of services is ensured. For the user, the present invention offers a high degree of convenience, since many steps are carried out in automated fashion. For the operator of the local network, who makes a profit at the location where the service is made available, ~~it is advantageous that~~ his network ~~is~~can be optimally utilized, thus maximizing earnings.

~~The present invention is elucidated in the following, using an exemplary embodiment.~~

~~In the~~For example, ~~the~~a user has a laptop and a cellular phone which includes organizer functions. The laptop ~~he uses~~is used substantially privately. On a suitable Internet page, ~~he~~the user has found software offers of interest ~~to him,~~ and has assembled them for the download. For time reasons, however, ~~he~~the user wants to undertake the actual download only when a certain downstream bandwidth is available to him. ~~He~~The user uses the cellular phone professionally for managing E-mail and appointments. In his user profile, ~~he~~the user has specified to undertake a synchronization with the corporate network as

often as possible. To save time, however, ~~he~~the user has only the subject lines of the individual messages transmitted~~,~~ in order to be able to sort out unimportant messages.

If the user now enters a cafe which makes a wireless access point available, his devices perceive this independently. They establish the necessary connection autonomously, taking into account the bandwidths required, and fulfill the tasks set beforehand. While the laptop undertakes the notified download with the greatest possible bandwidth, the cellular phone reserves for itself only a small bandwidth, ~~e.g.~~for example, of the Bluetooth connection, and synchronizes itself automatically with the corporate network. The services therefore follow the user, without him having to reactivate and ~~configurate~~configure them in each instance.

~~The method~~Exemplary embodiments of the present invention ~~is~~can be implemented using an administrator which has a first interface to an external network, ~~especially~~for example, the Internet and/or a telephone network, and a second interface to a local network, via which a short-range radio link, suitable for the data transmission, is able to be established to a terminal present in the transmission and reception range. In ~~addition~~further embodiments, the administrator has a router module, realized ~~in particular~~, for example, by a computer program, which determines the type of data waiting for transmission, and establishes a connection, corresponding to the type, to a terminal. This connection is optimized in light of the terminal available, the costs and/or the transmission speed.

~~What Is Claimed Is~~WHAT IS CLAIMED IS:

ABSTRACT

~~The invention relates to a~~A method and system for exchanging data using a wireless connection~~,~~ according to which a user with one or more portable terminals is located in the transmission and receiving area of at least one network and the terminal or terminals log on automatically to the network in order to establish a connection. A transmission channel for the data exchange is made available for the respective connection that has been established~~ and said~~. The transmission channel is automatically adapted for the data exchange to the type of terminal and the type, ~~in particular~~for example, quantity, of data to be transmitted, by an administrator that is allocated to the network.